

Abstracts and Extracts in General and Professional Literature.

BY

ARCHIBALD L. CLARKE.

ASSISTANT EDITOR AND CATALOGUER, ROYAL SOCIETY OF MEDICINE.

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ABSTRACTS AND EXTRACTS IN GENERAL AND PROFESSIONAL LITERATURE.¹

BY ARCHIBALD L. CLARKE, ASSISTANT EDITOR AND CATALOGUER, ROYAL SOCIETY OF MEDICINE.

I. General Literature.

THE art of abstracting or extracting from literature has been long known and practised.

The arguments prefixed to the poems of Milton and Pope are interesting examples of extracting from a literary point of view, and one of the best instances of the principle of abridgment in general literature is seen in Charles and Mary Lamb's "Tales from Shakespeare".

Sir Richard Phillips (1768-1840) is now almost forgotten, but his name long survived under the trade designation of Phillips' Educational Manuals. He earned the qualified praise of de Morgan who said that he possessed honesty, zeal, ability, and courage, all of which he applied to teaching matters about which he knew nothing. His powers of abstraction are well exemplified in his "Million of Facts". Charles Knight, with whom Phillips cannot be compared in literary estimation, became famous as a collector and disseminator of useful knowledge. This is well exemplified in his "Penny Magazine" and "Half-hours with the best Authors," 1847-48—the latter containing specimens of the literary work of about three hundred writers.

The practice of filling up the odd corners of cheap journals devoted mainly to fiction, such as "Bow Bells" and the "London Reader," with cuttings from interesting sources

¹ Read before the Annual Meeting of the Medical Library Association held in London, on 28 July, 1910. (The first and second sections are condensed.)

prevailed during the later decades of the nineteenth century, but with the foundation of "Tit-Bits," "Answers," "Pearson's Weekly," and other such magazines, abstracting and extracting from sources of literature likely to interest, instruct, or amuse, became a definite department of cheap journalism. The weekly instalment of fiction which early became a feature of these undertakings is always headed by a summary of the preceding chapters, for the obvious purpose of gaining readers who have not been able to follow the story from the beginning.

The "Review of Reviews" was established about twenty years ago with the purpose of supplying the principal facts and ideas contained in periodical publications. Nearly all the leading newspapers—for instance, "The Times" Literary Supplement—have followed the example set by the "Review of Reviews".

Lastly, one more important development of abstracting and extracting consists in the numerous annual almanacs and year-books such as "Whitaker's Almanac," "The Daily Mail Year-Book," and "Hazell's Annual," which give useful information needed at short notice.

II. Educational Literature.

The collection of extracts from various authors forms the literary output, in no small degree, of those concerned in education. Anthologies from Greek and Latin writers are too numerous to mention. In all languages collections of this nature are drawn more easily and satisfactorily from poetry than from prose. Good selections of poems have been issued by Prof. Saintsbury,¹ and the Poet Laureate, Mr. Alfred Austin.² In prose Chambers' "Cyclopædia of British Literature," 3 vols., 1901-3, occupies a high place, and, though of smaller compass, Prof. Murison's excerpts are representative.³ Equally useful collections of all that is best or of

¹ Saintsbury (G.). *Minor Poets of the Caroline Period.* 2 vols. 8vo. Oxford, 1905-06.

² Austin (A.). "Eighteenth Century Anthology." 8vo. London, 1904.

³ Murison (A. F.). "Selections from the best British Authors." 8vo. London, 1901.

interest in French and German literature have also been published.

Histories of the literature of a nation and histories of nations themselves are frequently written in brief, and are often condensed from more extended works. Mr. Stopford Brooke's "Primer of English Literature" and Sir W. Smith's "Smaller Histories of Greece and Rome" are representative specimens of such condensation.

No department of knowledge makes such demands upon a writer's ingenuity when he seeks to condense his subject as natural science—that is, when that condensation is required for educational purposes. It is important that fact should be given a foremost place, but it is in the judicious combination of fact and theory that the art of writing a successful educational guide appears.

III. Scientific and Technical Literature.

The history of the art of abstracting in the literature of science is both curious and interesting, as it can be traced fairly definitely from the seventeenth century right down to the present time.¹ Bacon preceded his "Magna Instauratio" by a chapter on the "Distribution of the Work," but a glance over it shows that it was clearly an introduction to what the author was going to write, not a summary of what he had already written.

I have come across, however, what appears to be a definite example of early abstracting in the "General Practice of Physicke" of Christopher Wirtzung (English translation by Jacob Mosan).² A perusal of its quaint phrases impresses one with the confident idea that it really summarizes the

¹ "Physical and Metaphysical Works of Lord Bacon, including the Advance ment of Learning and Novum Organum," edited by Joseph Devey. London, 1898.

² Wirtzung (Christopher). The general practise of physicke. Conteyning all inward and outward parts of the body with all the accidents and infirmities that are incident unto them even from the crowne of the head to the sole of the foote. . . . Compiled and written by the most famous and learned Doctour Christopher Wirtzung in the Germane tongue and now translated into English in divers places corrected and with many additions, illustrated and augmented, by Jacob Mosan, Germane, Doctor in the same facultie. London. Printed for Thomas Adams. Fol. 1617, p. 1.

contents of the Introduction after it has been written. As it is worthy quotation in full, the following is a transcript :—

“A very meet and necessary Introduction for the better understanding of all such things as are handled in this present Practise of Physicke.

“The contents of the Introduction :

“The misery of mans life caused by sinne hath constrained us to think on such meanes by the which that daily are incident unto it, might be eased: which truly by the mercie of God and Physicke’s rule, at length have beene found out. The profit and necessity whereof together are just causes why Physicke may thorowly be praised. And because the sicknesses are manifold and the body of man also divided into sundry parts and members, but principally into foure: the Head, the Breast, the Belly and the externall or outward parts: Every maladie hath her due remedie: also where, when and how and in what sort, every remedy is to be gotten, gathered and kept: likewise, if any superfluitie were in it, how and what is to be separated from it, what regiment or order is to be observed in purging, letting of blood, cupping or fastening of horsleaches. Then is shewed the due and true use of the ayre, of moving and quietnesse, of waking and sleeping, of meate and drinke. At length also are expounded the weights and measures which are used in physicke.”

Passages such as the foregoing will no doubt be the reward of the diligent searcher. Still more conclusive evidence that the practice had become a fairly common one is seen in a proposal made some eighty years later, the definitely successful inception of which had very wide-reaching effects. Although, as already stated, abstracting in scientific and medical writings was not unknown, the art received such an impulse from John Lowthorp, Mathematician and Fellow of the Royal Society, that he well deserves to be described as the father of it. Time was considered of value, even in those days, and Lowthorp clearly saw the advantages that would accrue to students and even the learned if they could read up in brief an account of the researches of their confrères. The Royal Society was then nearly forty years

old and upwards of twenty volumes of the "Philosophical Transactions" had been printed and published. The following is the Minute stating the application and recording the Society's approval of the scheme. It will be noticed that the Minute was signed by Sir Isaac Newton, then president :—

"At a Meeting of the Royal Society

"Sir John Hoskyns, V. P. in the Chair

"Mr. Lowthorp presented a proposal for printing an Abridgment of the Philosophical Transactions. This Design was approv'd by the Society and he was desired to proceed ftherein.

"Imprimatur Is. NEWTON, R. S. Pr.

"May 12, 1705."

The work was proceeded with, though not very rapidly, or the first volumes were not issued from the press till 1733. It is to be hoped that some of that generation had an opportunity of referring to the manuscript, otherwise what was intended for the benefit of the fathers would have had to accrue solely for that of the sons.

Knowledge, however, in the seventeenth and eighteenth centuries did not make the rapid strides that it does nowa-days, so that there is no doubt that when the volumes came out their contents were as welcome as they were useful. Lowthorp abstracted the contents of the volumes covering the years 1665 to 1700. Later volumes in this series were compiled by Henry Jones, Reid, John Gray, and John Martyn. The last was the well-known botanist, editor of the works of Virgil, with translation and natural history notes, and unsuccessful candidate for the secretaryship of the Royal Society.¹ The future series of thcse were continued down to the time of the regular instalment of the Proceedings of the Royal Society in the year 1854.²

¹ "Dict. Nat. Biogr.," 1893, XXXVI, p. 318. For some account of the doings, or rather misdoings, of his successful competitor, Cromwell Mortimer, see an article by myself in "The Library," 1899-1900, N.S., I, p. 274.

² A detailed bibliographical record appears at the end of this communication.

The rules upon which Lowthorp based his labours deserve special attention, because, it seems to me, there is little in them that is not applicable to present-day requirements in such work. I have therefore quoted them *in extenso*, as follows, together with the concluding remarks:—

“ I. I have not only retained the essential parts of the discourses but I have kept in many places to the very words of their own authors (except where I was forced to vary them a little, to preserve the connexion); for I thought it very unwarrantable to obtrude anything of mine under the name of another person.

“ II. But to shorten the whole work wherever I found any personal addresses, long and unnecessary excursions, or pompous citations of books I have taken the liberty to suppress them; yet, I hope, without injuring the force of the author's reasoning.

“ III. I have omitted all accounts and extracts of books which after so many years' publication seem almost useless: yet, to put the readers in mind of them, especially such as are about to furnish or enlarge their libraries, I have added as a catalogue at the end of each chapter to which they chiefly belong, and I have also directed them to such additions, emendations or refutations, as ought to be consulted when those books fall under their examination.

“ IV. I have also omitted all heads of inquiries and experiments simply proposed, without further prosecution; believing that the answers already given to many of them and other discourses upon the same, or the like subjects, will sufficiently direct the notice of an inquisitive reader.

“ V. The previous calculations of eclipses, lunar appulses, and satellite eclipses and occultations; also tide-tables, and many other curious papers of that kind, have long ago outlived the reason of their publication.

“ VI. All simple catalogues of natural curiosities as of shells, minerals, plants, animals, etc., without particular descriptions of them, are little instructive; and chiefly serve to enlarge the history of the museum where they are deposited, which is no part of the design of these volumes.

“ VII. I have commonly omitted such papers as have

been collected into just volumes by their own authors. For this reason I have omitted some of those surprising microscopical discoveries by the famous M. Leeuwenhoeck: but I farther confess, I was also less inclined to insert them here, because most of them treat of subjects not at all convenient (in my opinion) for common readers.

“VIII. But, to do all the right I could to the ingenious authors of those papers, which the limits of this abridgment obliged me to omit, I have, at the end of each chapter, annexed their titles, and sometimes a short account of them.

“These are the rules I have carefully observed through the whole conduct of this tedious work: wherein I have faithfully aimed at the general good of all sorts of readers; if I have failed in the performance, 'tis for want of judgment to do it better: but I am bold to say, that if a kind reception of this shall encourage a like abridgment of the foreign philosophical journals, in the same or a better order, it will much facilitate the many discoveries still ready to reward the labours and expences of all industrious promoters of natural knowledge.”

I have already pointed out that Lowthorp's and his successors' abstracts were the forerunners of the Proceedings of the Royal Society as published down to the present day. The Royal Society of Edinburgh and the Royal Dublin Society adopted the same principle, and have continuously published selected papers in full and brief reports of all papers. From the year 1857—not far from the time when the Proceedings of the Royal Society were formally instituted—the Royal Medical and Chirurgical Society adopted the same form of publication down to the years 1898-99.¹

I draw special attention to the concluding paragraph of the remarks following Lowthorp's rules. He says: “I am bold to say that if a kind reception of this shall encourage a like abridgment of the foreign philosophical journals, in

¹ These proceedings have the additional value of the discussions on the papers being reported (dating from the year 1882). This is not the case with the other societies above mentioned.

the same or a better order, it will much facilitate the many discoveries still ready to reward the labours and expences of all industrious promoters of natural knowledge". It is noteworthy that the development of the practice of abridgment took place not only among British transactions and memoirs, but that by degrees the whole future publication of communications emanating from foreign learned societies became based on this principle. Unfortunately among English-speaking races¹ the classical distinction between the terms "Transactions" and "Proceedings" has never been wholly recognized, but as a general rule "Transactions" are held to represent the more lengthy communications, or at any rate communications *in extenso*, while "Proceedings" indicate quite brief reports (including the official business of the Society or Association) and invariably papers in abstract. "Transactions" in the sense above defined were strictly represented by the terms "Verhandlungen" (sometimes "Abhandlungen") in German and "Mémoires" in French, whereas "Proceedings" in their usual acceptance were rendered "Berichte" in German and "Comptes-rendus" in French. At a very early date, comparatively speaking, these terms, as above defined, became current in the scientific literature of German, French, and other languages on the Continent, and to this day the difference in nature between the two sets of communications, those in brief and those in full, are sharply delineated. There can be little doubt therefore that this definite practice did spread from England to the Continent and was the direct realization of Lowthorp's hope.

The same division in form of publication, (1) papers in brief with discussions, followed (2) by all the papers together with their full text, has almost invariably been observed by the editors or editing committees of printed records of the numerous Congresses and Conferences that have become such a feature in the domains of science, sociology, and philanthropy throughout the world during the last half century or so.

¹ It may be remarked in passing that American publications of this sort, as a rule, do not distinguish between "Proceedings" and "Transactions".

I now pass on to an equally interesting and far more important development—that is abstracts and extracts: (1) in publications wholly or principally devoted to this form of presentation published either as year-books or in more frequent instalments; (2) as a special feature in scientific periodicals of all sorts and kinds.

The now far wider application of the concentrated message first found its expression in the year-book in the first half of the nineteenth century. Instances so numerous are there of this form of publication, that it would be impossible to do more than quote quite a few instances. To take medical literature, and that of allied sciences, more especially. In England Ranking's "Half-Yearly Abstracts," Braithwaite's "Retrospect," Cassell's "Year-book of Treatment," and the Bristol "Medical Annual," are familiar instances, the last one of which is alone extant. In America useful résumés were supplied by the now defunct Gould's "Year-book of Medicine and Surgery"; in France by the "Revue des sciences médicales," which also came to an end in 1898. The land of their greatest development is the German Empire, where Schmidt's "Jahrbücher," and Virchow and Hirsch's "Jahresbericht," have thriven for many years and still go on flourishing. Many of these year-books have been short-lived from want of proper support from the very beginning. Others have had a prosperous career for a long while, and have then been obliged to terminate their existence. The immediate reason has been as already stated, want of support, but the primary cause of their untimely and undeserved failure has been that of competition on the part of general and special scientific and medical journals in the same direction of summarizing current literature. It will be remembered how in the opening remarks allusion was made to the wide development in the lay press of cheap weekly journals giving abstracts and extracts of all sorts of information useful and otherwise: how this began about twenty to thirty years ago. Now it is perfectly true that abstracts and extracts of scientific facts and opinions were printed in various periodicals long anterior to that date, but it has been *concurrently* with the development in the lay press that abstracting in scientific and medical

journals has advanced in leaps and bounds. The reader, instead of having to wait for his epitomes till the half year or year is up, can have them week by week or month by month, and this will easily explain why so many year-books have unhappily gone to the wall. It also explains the enormous growth in bulk of so many of our medical and scientific journals.

It is almost superfluous to say that the part played by medical and scientific libraries in this output is a prominent one. Indeed it may almost be said that the library is the manufactory where the raw material—the original paper—is worked up into the finished article—the abstract.

The same practice obtains in departments other than those purely medical—anthropology, chemistry, and microscopy, for example. Much useful work is done by the International Institute of Technical Bibliography, which issues a publication named "Engineering Abstracts," giving all the titles and brief abstracts of current literature in mechanical, electrical and civil engineering, mining and metallurgy and applied chemistry. Much fuller abstracts are issued by the Institute of Civil Engineers, the Iron and Steel Institute, the Institute of Electrical Engineers, all of which publish summaries of articles dealing with their respective specialities in the papers comprising their journals.

IV. Legal Literature.

The term generally employed for the process of abstracting in law reports, etc., is "digesting," which though of totally different derivation, and of separate meaning metaphorically, represents much the same in action.

It is not possible to digest a statute, as every word of it is of importance; if this were done the sense would be lost, and the use of such a digest would be of no value. At the same time, however, articles appear in the "Law Times," the "Law Journal," and other legal periodicals giving a brief account of various Acts passed during the year.

On the other hand, digest of cases form a prominent feature in legal writing. The following publications are important in this respect: Mews' "Digest of English Case

Law," Butterworth's "Digest," and the "Law Reports Digest". Mews' "Digest" includes all cases reported from about 1740 to 1897, and from that date onwards. Butterworth's "Digest" is compiled on the same plan mainly as Mews'. "The Law Reports Digest" (on the same plan again as Mews') contains only those cases reported in the "Official Series of Law Reports," published by the Incorporated Council of Law Reporting for England and Wales.

The "Digest of South African Case Law," by Bisset and Smith, published in 1909, contains substantially all the cases that have been reported in the courts of South Africa down to the year 1905. General digests have been issued of the "Victorian Law Reports," and of the "New Zealand Law Reports" by their respective publishers.

It is a trite saying that America does and possesses everything on the biggest scale in the world. The United States are said to lay claim to the largest legal digest in existence, in the shape of the "American Digest, Century Edition," which includes all cases reported in America from 1658 to 1896—the decennial edition of which is being issued as a supplement.

It will thus be seen that abstracting as carried out in the literature of science in all its branches—whether pure or applied—does not exist in the legal world. Science is cosmopolitan: law is not. Science is the one bond of union between nations whose racial characteristics preclude any further *entente cordiale*. What the Italian man of science has written on biology to-day the Swede must know to-morrow; the medicine and surgery of England are in touch with those of the German and Austrian Empires as to the latest methods of treatment and operation. The Faculties of Science and Medicine of the Universities of Paris and Berlin are in close union.

International Law, however, can be but a subject of academic interest, great though that interest be. It is not the concern of the ordinary solicitor to whom national law is everything, and it is outside the province of many members of the higher branch of the profession, therefore abstracts of cases in foreign courts are little in demand in England.

The spirit of the literature of science is interchange of thought: the essence of legal literature is concentration of idea.

V. Conclusion.

A few words in conclusion as to the form these abstracts take may not be inappropriate. With the subject matter—in the domain of science especially—this paper has nothing to do. With regard to length, of course, the whole point is lost if the summary be too prolix and if too many details are given. Length in moderation, however, is at least a good fault, for nothing is more disappointing than to look up the abbreviated report of an article and to find that it is nothing else than a mere annotation containing no statements of fact or opinion. Brief abstracts, giving just enough information should contain (1) the author's opinion in a few words, (2) an outline of statistics (if given), and (3) a concise description of the method detailed, whether of a laboratory process, of a technical or manufacturing process, or that of a particular medical treatment or a surgical operation. Anything less than this is valueless. More than once I have seen the following annotation in a "Review of Current Literature": "The title of the paper sufficiently indicates its contents"—or something to that effect and no more. This is the *reductio ad absurdum* of abstracting. Another point is worthy attention, and it is this: The "Periscope," the "Review of Current Literature," "General Survey of the Latest in Science," and many such headings, are the various names given to the section devoted to abstracts at the end of numerous journals, whether issued weekly, monthly, or quarterly. This feature of the journals is due quite as much to trade competition as to an earnest desire to spread a knowledge of science. A busy editor has to fill up his "abstract" pages; he frequently has not time to collate his work and presumably leaves it to assistants. The consequence of all this is that the same paper occasionally gets abstracted *twice over*, which, of course, though not entirely valueless, is a most unnecessary proceeding. And again, the same papers are abstracted over and over again in

different journals, which is a great waste of time and energy. It would enhance the value of such work if editors of different publications agreed with one another not to *duplicate* abstracting. There would then be both time and space to give fuller summaries of a reduced number of articles. If great industrial undertakings such as competing railway companies, combine to cut down needless competition and reduce working expenses, why should not scientific and technical journals adopt the same course?

In the preparation of this paper I am indebted for information kindly given, to Mr. E. W. Hulme, Librarian of the Patent Office Library, to Dr. Kinzbruner, Secretary of the International Institute of Technical Bibliography; to Mr. Victor Plarr, Librarian of the Royal College of Surgeons; also to Mr. H. A. C. Sturgess, Assistant Librarian, Middle Temple Library; also to various other helpers, to whom with the foregoing, mentioned by name, I tender my hearty thanks.

Appendix.

There are two applications of the principle of abstracting which it was hardly possible to include in the foregoing account, as their use is official and even commercial, rather than literary.

The first is *précis* writing, which forms so important an element of work in many departments of the Civil Service (Foreign Office, War Office, Education Department, etc.). Numerous guides and textbooks have been written on this subject.¹

The second which is of cognate nature is calendaring. This consists in making abstracts of State papers, documents historical and municipal, despatches, and letters. The abstracts of these documents are placed under the name of the writer or if necessary under the subject and, whether there be few or many, are arranged as the name of the process implies, in strict order of date. Useful directions for

¹ The latest issued that I can find is Chatwin (G. A. F. M.). "A first précis book. Selected English passages for précis writing." 8vo. London, 1909.

calendaring are published in Cutter's cataloguing rules,¹ but I cannot find any elsewhere. Example, however, in this respect is as good if not better than precept, and the recently published "Calendar of the Sir William Johnson Manuscripts in the New York State Library," gives the clearest notion how such work should be done.²

The following is a list of journals, year-books, and proceedings of societies giving abstracts of general scientific but principally biological and medical literature. It need hardly be said that it is not in the least exhaustive, as the practice of summarizing scientific writings has become widespread. It is simply a guide to some of the principal publications undertaking the work at the present time, and it also includes a few defunct year-books which have ceased publication for reasons presumed in the text of this paper, but which were much relied upon during the period of their existence.

Abstract (Half-yearly) of the Medical Sciences. Edited by W. H. Ranking and C. B. Radcliffe. 58 vols. Sm. 8vo. London, 1845-73. (Discontinued in 1873.) General Indexes in vols. VIII, XIV, XXII, XL.

American Journal of the Medical Sciences. Vols. I-XXVI. 8vo. Philadelphia, 1827-40. New Series. Vols. I-. 1841-.

American Year-book of Medicine and Surgery. Edited by G. M. Gould. 8vo. London, 1896-1905.

Anatomischer Anzeiger. Centralblatt für die gesamte wissenschaftliche Anatomie. Vols. I-. 8vo. Jena, 1886-.

Annual and Analytical Cyclopædia of Practical Medicine. Edited by C. E. Sajous. 8vo. Philadelphia, etc., 1900-.

Annual of the Universal Medical Sciences. A yearly report of the progress of the general sanitary sciences throughout the world. Edited by C. E. Sajous. 8vo. Philadelphia and London, 1888-96.

Anthropologie (L'). Vols. I-. 8vo. Paris, 1890-.

Berliner klinische Wochenschrift: Organ für praktische Aerzte. Vols. I-. 4to. Berlin, 1864-.

Bibliographia Physiologica. Supplement to Centralblatt für Physiologie. Edited by H. Jordan. 8vo. Viennæ et Lipsiæ, 1906-.

¹ Cutter (C. A.). "Rules for a Dictionary Catalog." 4th edition. 8vo. Washington, 1904.

² Day (Richard E.). "Calendar of the Sir William Johnson Manuscripts in the New York State Library." 8vo. Albany, 1909.

British Medical Journal. Supplement: A weekly epitome of current medical literature. 8vo. London, 1890-.

Bulletin de l'Institut Pasteur. Revues et analyses des travaux de Bacteriologie, etc. 8vo. Paris, 1903-.

Centralblatt für Bacteriologie und Parasitenkunde. Vols. I-. 8vo. Jena, 1887-.

Centralblatt für Bakteriologie, Parasitenkunde, und Infektionskrankheiten. Erste Abth. Referate. Edited by O. Uhlworm. 8vo. Jena, 1902-.

Centralblatt für Chirurgie. Vols. I-. 8vo. Leipzig, 1874-.

Centralblatt für innere Medicin. Vols. I-. 8vo. Leipzig, 1880-. Up to and including the year 1893 the adjective "klinische" was used instead of "innere".

Deutsche medicinische Wochenschrift. Vols. I-. 4to. Berlin, 1875-.

Dublin Journal of Medical Sciences. Vols. I-XXVIII. 8vo. Dublin, 1818-30. New Series. Vols. I-LII. 1846-71. Third Series. Vols. LIII-. 1872-.

Edinburgh Medical Journal. Vols. I-. 8vo. Edinburgh, 1855-.

Ergebnisse der allgemeinen Pathologie und pathologischen Anatomie des Menschen und der Tiere. O. Lubarsch & R. Ostertag. 8vo. Wiesbaden, 1896-.

Ergebnisse der Physiologie. Herausg. von L. Asher u. K. Spiro. 8vo. Wiesbaden. 1902-.

Jahresbericht über die Fortschritte der gesammten Medicin in allen Ländern: herausgegeben von C. Canstatt, 1842-65. 4to. Erlangen, 1842-65.

Jahresbericht über die Fortschritte in der Lehre von den pathogenen Mikro-organismen umfassend Bacterien, Pilze und Protozoen: von P. Baumgarten. Vols. I-. 8vo. Braunschweig, 1885-.

Jahresbericht über die Fortschritte des physischen Wissenschaften von Jacob Berzelius: aus dem Schwedischen übersetzt von C. G. Gmelin. Vols. I-XX. 8vo. Tübingen, 1822-48.

Jahresbericht über die Fortschritte der reinen, pharmaceutischen und technischen Chemie, Physik, Mineralogie und Geologie: herausgegeben von J. Liebig und H. Kopp. 1851-69. 8vo. Giessen, 1852-72.

Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Neurologie u. Psychiatrie. 1 Jahrg. 1897-. La. 8vo. 1898-.

Jahresbericht über die Fortschritte der Thier-Chemie, oder der physiologischen und pathologischen Chemie. Vols. XVII-. 1887. 8vo. Wiesbaden, 1888-.

Jahresbericht über die Leistungen und Fortschritte der gesammten Medicin, 1866-. 4to. Berlin, 1866-.

Journal of the American Medical Association. Current medical literature, 1899-. 4to. Chicago, 1899-.

Jahresbericht über die Fortschritte auf dem Gebiete der Chirurgie. Edited by Prof. Dr. Hildebrand. 8vo. Wiesbaden, 1896-.

Lancet (The), 1823-43. New Series. 1844-. 8vo and 4to. London, 1823-43, 1844-.

Medical Annual (The) and Practitioners' Index: a work of reference for medical practitioners. Published by J. Wright, Bristol. 8vo. 1890-.

Medical Chronicle. A monthly record of the progress of medical science. 8vo. Manchester, 1884-.

Medical Review. (Medical and Surgical Review of Reviews.) Vol. II-. Continuation of *Medical and Surgical Review of Reviews*. Edited by N. E. Boyd. After vol. III by J. R. T. Conner. 8vo. London, 1899-.

Nature: a weekly illustrated journal of science. Vols. I-. 1869. 4to. London, 1870-.

Retrospect of Medicine (Braithwaite's). A half-yearly journal containing a retrospective view of every discovery and practical improvement in the medical sciences. Edited by W. Braithwaite and James Braithwaite. Vols. I-CXXIII. 12mo. London, 1840-1901.

Revue des sciences médicales en France et à l'étranger, recueil trimestriel analytique, critique et bibliographique dirigé per Georges Hayem. Tome I-LII. 8vo. Paris, 1873-98.

Revue neurologique. 8vo. Paris, 1893-.

Royal Medical and Chirurgical Society of London. Transactions. Vols. I-. 8vo. London, 1809-. Proceedings, vols. I-IX. 8vo. London, 1857-81. New Series. Vols. I-. 8vo. Lond. 1882-8. 3rd Series. Vols. I-XI. 8vo. Lond. 1889-99.

Royal Society of Edinburgh. Transactions. Vols. I-. 1783-. 4to. Edinburgh, 1788-. Proceedings. Vols. III-. 1850. 8vo. Edinb. 1852-

Royal Society of London. The Philosophical Transactions abridged and disposed under general heads (from the commencement in 1665 to 1750). 10 vols. in 11. 4to. London, 1733-56.

Vols. I-III (1665-1700), by John Lowthorp.

IV-V (1700-20), by Henry Jones.

VI-VII (1720-32), by Mr. Reid and John Gray.

VIII-X, by John Martyn.

Medical Essays and Observations abridged from the Philosophical Transactions, by S. Mihles. 2 vols. 8vo. London, 1745.

Abstracts of the papers printed in the Philosophical Transactions (from 1800 to 1843). Vols. I-IV. 8vo. London, 1832-43.

Abstracts of the papers communicated to the Royal Society of London. Vols. V-VI. 8vo. London, 1851-4.

Proceedings of the Royal Society of London. Vols. VII-LXXV. 8vo. London, 1854-1905.

— Series A, Mathematical and physical sciences. Vol. LXXVI. 1905-. 8vo. London, 1905-.

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